ANALYTICAL BIOCHEMISTRY

Methods in the Biological Sciences

Volume 256, 1998

EDITOR-IN-CHIEF
William B. Jakoby

EXECUTIVE EDITORS

Assistant to the Editor-in-Chief, William S. Allison

Shelby L. Berger
Ludwig Brand
George M. Carman
Prescott Deininger
Jack E. Dixon
Howard Goldfine
Owen W. Griffith
Ueli Gubler
John A. Hanover
Carlos B. Hirschberg
Robert Ivarie
Barry L. Karger
Y. C. Lee
Maria C. Linder
Irving Listowsky
Walter M. Lovenberg
Peter McPhie
Richard N. Perham
B. David Stollar
Bert L. Vallee
M. H. V. Van Regenmortel

William D. McElroy
EDITOR EMERITUS

Alvin Nason, Founding Editor, 1960–1977
Nathan O. Kaplan and William D. McElroy, Editorial Committee Co-Chairmen, 1978–1986

ACADEMIC PRESS

Copyright © 1998 by Academic Press
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the Publisher. *Exceptions:* It is the policy of Academic Press that authors need not obtain permission in the following cases only: (1) to use their original figures or tables in their future works; (2) to make copies of their papers for use in their classroom teaching; and (3) to include their papers as part of their dissertations.

The appearance of the code at the bottom of the first page of an article in this journal indicates the Publisher's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (222 Rosewood Drive, Danvers, Massachusetts 01923), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1998 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-2697/98 $25.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

CONTENTS OF VOLUME 256

NUMBER 1, FEBRUARY 1, 1998

2,3-Dihydro-2,5-dihydroxy-4*H*-benzopyran-4-one: A Nonphysiological Substrate for Fungal Melanin Biosynthetic Enzymes *James E. Thompson, Gregory S. Basarab, John Pierce, C. Nicholas Hodge, and Douglas B. Jordan* 1

Partition Analysis of an Enzyme Acting Concurrently upon Two Substrates in a Continuous Multiwavelength Assay *James E. Thompson and Douglas B. Jordan* 7

Extraction of Octamethylcyclotetrasiloxane and Its Metabolites from Biological Matrices *Sudarsanan Varaprath, Kevin L. Salyers, Kathleen P. Plotzke, and Shrenik Nanavati* 14

Two-Dimensional Mapping of 8-Amine-1,3,6-Naphthalene Trisulfonic Acid Derivatives of N-Linked Neutral and Sialyloligosaccharides *Omar Quintero, Raquel Montesino, and José A. Cremata* 23

Isomeric Differentiation of Asparagine-Linked Oligosaccharides by Matrix-Assisted Laser Desorption–Ionization Postsource Decay Time-of-Flight Mass Spectrometry *Jason C. Rouse, Anne-Marie Strang, Wen Yu, and James E. Vath* 33

Development of a CD28 Receptor Binding-Based Screen and Identification of a Biologically Active Inhibitor *Chung-Her Jenh, Meng Zhang, Maria Wiekowski, Jimmy C. Tan, Xue-Dong Fan, Vinod Hegde, Mahesh Patel, Robert Bryant, Satwant K. Narula, Paul J. Zavodny, and Chuan-Chu Chou* 47

Physicochemical and Immunochemical Properties of Recombinant Human Serum Albumin from *Pichia pastoris* *Wataru Ohtani, Yoshihito Nawa, Kazuya Takeshima, Hideki Kamuro, Kaoru Kobayashi, and Takao Ohmura* 56

A ^{1}H NMR Spectroscopic Approach to the Unambiguous Determination of Glycosyl Linkage Positions in Oligosaccharides *Shuqun Sheng, Robert Cherniak, and Herman van Halbeek* 63

A Competitive Immunoassay for the Detection of Esterolytic Activity of Antibodies and Enzymes *Fabio Benedetti, Federico Berti, Massimiliano Flego, Marina Resmini, and Erica Bastiani* 67

Carotenoid Determination in Biological Microsamples Using Liquid Chromatography with a Coulometric Electrochemical Array Detector *Mario G. Ferruzzi, Lane C. Sander, Cheryl L. Rock, and Steven J. Schwartz* 74

Differential Display with Carboxy-X-rhodamine-Labeled Primers and the Selection of Differentially Amplified cDNA Fragments without Cloning *Yoshie Yoshikawa, Hiroyuki Mukai, Kiyozou Asada, Fumitsugu Hino, and Ikunoshin Kato* 82

A New Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy Method for the Study of Proteins in Solution *Keith A. Oberg and Anthony L. Fink* 92

Hemoglobin–Oxygen Equilibrium Curves Measured during Enzymatic Oxygen Consumption *Kim D. Vandegriff, Ronald J. Rohlfs, Michael D. Magde, Jr., and Robert M. Winslow* 107

A Radioreceptor Assay for Mass Measurement of Inositol (1,4,5)-Trisphosphate Using Saponin-Permeabilized Outdated Human Platelets *J. Rivera, M. L. Lozano, R. Gonzalez-Conejero, J. Corral, F. De Arriba, and V. Vicente* 117

Resuspension-Induced Ion Flux *David B. Millar* 122

NOTES & TIPS

Forward and Reverse DNA Sequencing in a Single Reaction *Dirk van den Boom, Christian Jurinke, Andreas Ruppert, and Hubert Köster* 127

Synthesis of a Self-Gelatinizable Grafting Copolymer of Poly(vinyl Alcohol) for Construction of an Amperometric Peroxidase Electrode *Bin Li, Li Niu, Wenpeng Kou, Qing Deng, Guangjin Cheng, and Shaojun Dong* 130

Identification of Pathogenic *Leptospira* by TaqMan Probe in a LightCycler *Tony H. S. Woo, B. K. C. Patel, Lee D. Smythe, Michelle A. Norris, Meegan L. Symonds, and Michael F. Dohnt* 132

Monoclonal Antibodies against Proliferating Cell Nuclear Antigen Cross-React with the Peroxisomal Multifunctional Protein *Doris Mayer, Klaus Forstner, Konstantin Beier, and Alfred Völkl* 135

Site-Directed Mutagenesis by Combined Chain Reaction *Wanli Bi and Peter J. Stambrook* 137

DNA Sequences Obtained from Filamentous Bacteriophage Virions by Direct Cycle Sequencing *Lori L. C. Bonnycastle* 140

A Versatile Method for Unidirectional Cloning of Oligonucleotide Cassettes: Application to Creating Concatamerized Transcription Factor Binding Sites *Joanne F. Christer, Magdi H. Yacoub, and Nigel J. Brand* 142

BOOK REVIEWS

Methods in Enzymology, Volume 284, *Lipases, Part A, Biotechnology.* Edited by Byron Rubin and Edward A. Dennis Reviewed by *H. Stewart Hendrickson* 146

Methods in Enzymology, Volume 286, *Lipases, Part B, Enzyme Characterization and Utilization.* Edited by Byron Rubin and Edward A. Dennis Reviewed by *H. Stewart Hendrickson* 146

CORRIGENDUM

Volume 251, Number 2 (1997): Kenneth Hensley, M. L. Maidt, Q. N. Pye, C. A. Stewart, M. Wack, T. Tabatabaie, and R. A. Floyd, "Quantitation of Protein-Bound 3-Nitrotyrosine and 3,4-Dihydroxyphenylalanine by High-Performance Liquid Chromatography with Electrochemical Array Detection," pp. 187–195 148

NUMBER 2, FEBRUARY 15, 1998

Detection of Aggregatable Proteoglycan Populations by Affinity Blotting Using Biotinylated Hyaluronan *James Melrose, Christopher B. Little, and Peter Ghosh* 149

Multiplex Display Polymerase Chain Reaction Amplifies and Resolves Related Sequences Sharing a Single Moderately Conserved Domain *Franklin V. Peale, Jr., Karen Mason, Andrew W. Hunter, and Mark Bothwell* 158

Discovery of Human Antibodies to Cell Surface Antigens by Capture Lift Screening of Phage-Expressed Antibody Libraries *Jeffry D. Watkins, Gregory Beuerlein, Herren Wu, Paul R. McFadden, James D. Pancook, and William D. Huse* 169

Carnitine Palmitoyltransferase I Activity Monitoring in Fibroblasts and Leukocytes Using Electrospray Ionization Mass Spectrometry *Luzaan Nolte, Francois H. van der Westhuizen, Pieter J. Pretorius, and Elardus Erasmus* 178

One-Day Enzymatic Synthesis and Purification of UDP-*N*-[1-^{14}C]Acetyl-Glucosamine *Barbara Leiting, KellyAnn D. Pryor, Suzanne S. Eveland, and Matt S. Anderson* 185

Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry Analysis and Thiol-Group Determination of Isoforms of Bovine Cytochrome c Oxidase, a Hydrophobic Multisubunit Membrane Protein *Martin K. Marx, Franz Mayer-Posner, Tewfik Soulimane, and Gerhard Buse* 192

Thyroid Stimulating Hormone Assays Based on the Detection of Gold Conjugates by Scanning Force Microscopy *Agnès Perrin, Alain Theretz, and Bernard Mandrand* 200

Improvements to in-Line Desalting of Oligosaccharides Separated by High-pH Anion Exchange Chromatography with Pulsed Amperometric Detection *James R. Thayer, Jeffrey S. Rohrer, Nebojsa Avdalovic, and R. Patrick Gearing* 207

Quantitation of Tumor Foci in an Experimental Murine Tumor Model Using Computer-Assisted Video Imaging *Allison M. Watts and Ronald C. Kennedy* 217

Automated High-Throughput Mass Spectrometric Analysis of Synthetic Oligonucleotides *David A. Van Ausdall and William S. Marshall* 220

Quantitation of Proteoglycans as Glycosaminoglycans in Biological Fluids Using an Alcian Blue Dot Blot Analysis *Sven Björnsson* 229

NOTES & TIPS

pH Measurement: A Comparison of Results Using Glass Membrane Electrodes vs Solid-State Electrodes as a Function of Solution Composition *Patricia M. Pooler, Miriam L. Wahl, Aaron B. Rabinowitz, and Charles S. Owen* 238

A Chemical Modification Method for the Structural Analysis of RNA and RNA–Protein Complexes within Living Cells *Monika Balzer and Rolf Wagner* 240

Elimination of Creatine Interference with the Indophenol Measurement of NH_3 Produced during Nitrogenase Assays *M. J. Dilworth and K. Fisher* 242

Plasmids for One- and Two-Hybrid Analysis in Mammalian Cells *Ivan Sadowski* 245

Author Index for Volume 256 248

NOTICE

The Subject Index for Volume 256 will appear in the December 15, 1998, issue as part of a cumulative index for the year 1998.